REMARKS

This communication is responsive to the Office Action dated 27 July 2011, as extended where applicable under the provisions of 37 CFR §1.136(a) by payment of corresponding extension of time fees.

A Request for Continued Examination under 37 CFR §1.114 together with the corresponding fee are submitted herewith.

In this response, the Applicant has added new claims 56-73 for which patent protection is sought. New claims 56-73 are submitted to be completely supported by the Application as originally filed and to add no new matter.

Non-Statutory Double Patenting

The Office Action raises a non-statutory, obviousness-type double patenting objection to claims 1-4, 6, 8, 14, 18, 19, 30, 33 and 34 of this application based on claims 1-5 and 7-11 of co-pending application No. 11/831521.

This application and application No. 11/831521 are co-owned, as shown by the Statements under 37 CFR §3.73(b) filed 15 February 2008 on both applications – see PAIR.

In a response filed 27 September 2011 in connection with application No. 11/831521, the Applicant filed a terminal disclaimer of application No. 11/831521 over this application, which correctly identifies the § 371 national phase entry date of this application (rather than its international filing date) – see PAIR.

The Applicant submits that the terminal disclaimer filed on application No. 11/831521 obviates the double patenting rejection in this application.

Objections under 35 USC § 112 – Claim 9

The Examiner has raised 35 USC § 112 in connection with claim 9. The Applicant respectfully submits that claim 9 particularly points out and distinctly claims the subject matter of the invention and otherwise complies with 35 USC § 112.

Claim 9 does not recite that the function simultaneously increases and decreases or that the function both increases and decreases between the start pixel and the mid-pixel, as the Examiner appears to contend. In contrast, claim 9 recites "a function that is one of linearly monotonically increasing and linearly monotonically decreasing" between a start pixel and a mid-pixel and that is "the other of monotonically increasing and linearly monotonically decreasing" from the mid-pixel to the end pixel. This feature of claim 9 means that a function either: (i) increases linearly and monotonically from the start pixel to the mid-pixel and decreases linearly and monotonically from the mid-pixel to the end pixel; or (ii) decreases linearly and monotonically from the start pixel to the mid-pixel and increases linearly and monotonically from the mid-pixel to the end pixel.

Based on this reasoning, the Applicant respectfully submits that claim 9 complies with 35 USC § 112.

Objections Based on Prior Art – Claims 1-32

The Examiner raises US patent No. 7286702 (Oohara) in connection with claim 1, the combination of Oohara and WO/2003/071781 (Jarman et al.) in connection with claims 2-18 and 23-26, and the combination of Oohara, Jarman et al. and US patent No. 6038576 (Ulichney et al.) in connection with claims 19-22 and 27-32. The Applicant respectfully submits that currently pending claims 1-32 patentably distinguish these references as cited by the Examiner.

At col. 9, ln. 12 - col. 10, ln. 27, Oohara discloses a technique for determining a quantity *C* referred to by Oohara as a normalized "saturation". The Oohara normalized saturation *C* is defined to be the distance of a point (in RGB color space) from the achromatic (black and white) axis K-W and is normalized according to the contour of the RGB color solid – see

col. 7, ln. 23-26 and ln. 3-35. More particularly, the Oohara saturation *C* for an arbitrary point *A(r,g,b)* in RGB color space is defined to be *C=h/l* (equation (1)), where *h* is the distance between the arbitrary point *A* in RGB space and a co-planar point *W'* on the achromatic axis and *l* is the distance between the point *W'* and the point A, where *A'* is a point where the line extending between *W'* and *A* intersects the RGB color solid – see Figure 2 and at col. 9, ln. 36-54. In accordance with the Oohara definition of saturation *C*, every pixel in an image will have a saturation value *C*, but that saturation value *C* will vary from pixel to pixel depending on the location of the pixle in RGB color space.

Claim 1 recites a different concept of saturation, where saturation is defined in accordance with color model values and pixels are identified as being in a saturation region based on evaluation of their color model values relative to a saturation threshold. More particularly, claim 1 recites that "a saturation region wherein a color model value of each individual pixel in the saturation region is one of: above an upper saturation threshold and below a lower saturation threshold". Claim 1 recites further "identifying pixels in the saturation region."

The saturation value *C* taught by Oohara is not the same as the claim 1 "saturation region". The saturation value *C* taught by Oohara has a value that varies from pixel to pixel depending where the pixel is located in RGB space. Every Oohara pixel has its own saturation value *C*. In contrast, claim 1 recites identifying a color model value as being in a saturation region when its color model value is above or below corresponding upper and lower saturation thresholds.

Further, claim 1 recites "adjusting the color model value of individual pixels in the saturation region by a corresponding adjustment, a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and an edge of the saturation region." Oohara, as understood by the Applicant, does not teach or suggest this claim 1 feature.

Oohara teaches adjusting the saturation value *C* that is assigned to each pixel to a new value *C'* according to a procedure described in equations (4) and (5) and at col. 10, ln. 28-58. More particularly, Oohara describes adjusting the saturation value *C* according to the formula

$C' = F(C)$ (see equation (4) at col. 10, ln. 37), where the function $F(C)$ for a particular pixel depends on whether the saturation value C of the pixel is less than a predetermined parameter α (see equation (5) at col. 10, ln. 39-41). Accordingly, the magnitude of Oohara adjustment to saturation of a pixel (i.e., the absolute difference between the saturation value C before conversion and saturation value C' after conversion) is based on two parameters: the saturation value C before conversion and the predetermined parameter α.

As described above, the saturation value C is determined based on the pixel's location in RGB space. Oohara teaches that the parameter α may be designated by a user (col. 14, ln. 13-18) or may be determined based on saturations C of pixels in a predetermined area (see col. 14, ln. 59-62; col. 15, ln. 66 - col. 16, ln. 8; and col. 17, ln. 6-17). After a careful reading of Oohara, Applicant can find no teaching or suggestion that the parameter α is based on the number of pixels between any particular pixel and an edge of a saturation region.

Accordingly, Oohara, as understood, fails to teach "adjusting the color model value of individual pixels in the saturation region by a corresponding adjustment, a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and an edge of the saturation region," as is recited in claim 1.

The Office Action disagreed with the Applicant's argument presented in its 21 April 2011 response to the Office Action dated 21 December 2010. The Office Action expresses the view that "parameter α used based on a number or ratio of pixels has bearing on the location of the edge of the saturation area relative to any particular pixel in the area" and that "a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and the edge of the saturation" (Office Action at pg. 4). Respectfully, the Applicant disagrees:

Even if Oohara did teach that the value of α was determined based on a number of pixels between a pixel and an edge of a saturation region, which Ooohara does not, Oohara would still fail to teach "adjusting the color model value of individual pixels in the saturation region by a corresponding adjustment, a magnitude of each adjustment dependent, at least in part, on

a number of pixels between the corresponding pixel and an edge of the saturation region," as recited in claim 1. More particularly, consider the application of Oohara's technique to two identically valued pixels that are separated from the edge of a saturation region by different numbers of pixels. Since the pixels are identically valued, they will both map to the same location in RGB space. Consequently, according to Oohara's technique for calculation of saturation *C*, both of the identically-valued pixels will have the same saturation *C*. Further, Oohara teaches that the same parameter α is used for all pixels to determine how the pixel is adjusted, regardless of where the pixels are located in image space. Consequently, according to Ooohara's equation (5) at col. 10, ln. 39-42, both of the identically-valued pixels will have the same saturation *C'* after conversion. Accordingly the magnitude of the adjustment (between *C* and *C'*) for both of these identically valued pixels would be the same notwithstanding the fact that the pixels are separated from the edge of the saturation region by different numbers of pixels. Accordingly, Oohara fails to teach or suggest "a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and an edge of the saturation region," as is recited in claim 1.

For the above reasons, claim 1 is submitted to be patentable over Oohara.

The Examiner raises the combination of Oohara and Jarman et al. in connection with claims 2-18 and 23-26. As understood, Jarman et al. fail to remedy the above-discussed deficiencies with Oohara. Accordingly, the Applicant submits that claims 2-18 and 23-26 patentably distinguish the combination of Oohara and Jarman et al. as cited by the Examiner.

The Examiner raises the combination of Oohara, Jarman et al. and Ulichney et al. in connection with claims 19-22 and 27-32. As understood, the combination of Jarman et al. and Ulichney et al. fails to remedy the above-discussed deficiencies with Oohara. Accordingly, the Applicant submits that claims 19-22 and 27-32 patentably distinguish the combination of Oohara, Jarman et al. and Ulichney et al. as cited by the Examiner.

Objections Based on Prior Art -- Claim 33

The Examiner raises Oohara in connection with claim 33. The Applicant respectfully submits that claim 33 patentably distinguishes Oohara.

Claim 33 recites a computer program product that, when executed by a processor, causes the processor to execute a method similar to the method of claim 1. Claim 33 distinguishes Oohara for reasons similar to those discussed above for claim 1. More particularly, claim 33 recites "identifying pixels in a saturation region wherein a color model value of each individual pixel in the saturation region is one of: above an upper saturation threshold and below a lower saturation threshold." As discussed above in relation to claim 1, this concept of saturation is different than the Oohara concept of saturation where every pixel has a saturation value *C* which depends on the location of the pixel in RGB color space. Further, claim 33 recites "adjusting the color model value of each of the individual pixels in the saturation region by a corresponding adjustment, a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and an edge of the saturation region." As discussed above in relation to claim 1, Oohara fails to teach or suggest this feature. The Oohara parameter α may be designated by a user (col. 14, ln. 13-18) or may be determined based on saturations *C* of pixels in a predetermined area (see col. 14, ln. 59-62; col. 15, ln. 66 - col. 16, ln. 8; and col. 17, ln. 6-17), but the Oohara parameter α is not based on the number of pixels between any particular pixel and an edge of a saturation region as recited in claim 33.

Based on this reasoning, the Applicant submits that claim 33 is patentable over Oohara.

Objections Based on Prior Art – Claims 34-55

The Examiner raises Oohara in connection with claim 34, the combination of Oohara and Jarman et al. in connection with claims 35-44 and 48-52, and the combination of Oohara, Jarman et al. and Ulichney et al. in connection with claims 53-55. The Applicant respectfully submits that currently pending claims 34-55 patentably distinguish these references as cited by the Examiner.

Claim 34 recites a system with a processor configured to execute a method similar to the method of claim 1. Claim 34 distinguishes Oohara for reasons similar to those discussed above for claim 1. More particularly, claim 34 recites "identify pixels in a saturation region wherein a color model value of each individual pixel in the saturation region is one of: above an upper saturation threshold and below a lower saturation threshold." As discussed above in relation to claim 1, this concept of saturation is different than the Oohara concept of saturation where every pixel has a saturation value *C* which depends on the location of the pixel in RGB color space. Further, claim 34 recites "adjust the color model value of each of the individual pixels in the saturation region by a corresponding adjustment, a magnitude of each adjustment dependent, at least in part, on a number of pixels between the corresponding pixel and an edge of the saturation region." As discussed above in relation to claim 1, Oohara fails to teach or suggest this feature. The Oohara parameter α may be designated by a user (col. 14, ln. 13-18) or may be determined based on saturations *C* of pixels in a predetermined area (see col. 14, ln. 59-62; col. 15, ln. 66 - col. 16, ln. 8; and col. 17, ln. 6-17), but the Oohara parameter α is not based on the number of pixels between any particular pixel and an edge of a saturation region as recited in claim 34.

For the above reasons, claim 34 is submitted to be patentable over Oohara.

The Examiner raises the combination of Oohara and Jarman et al. in connection with claims 35-44 and 48-52. As understood, Jarman et al. fail to remedy the above-discussed deficiencies with Oohara. Accordingly, the Applicant submits that claims 35-44 and 48-52 patentably distinguish the combination of Oohara and Jarman et al. as cited by the Examiner.

The Examiner raises the combination of Oohara, Jarman et al. and Ulichney et al. in connection with claims 53-55. As understood, the combination of Jarman et al. and Ulichney et al. fails to remedy the above-discussed deficiencies with Oohara. Accordingly, the Applicant submits that claims 53-55 patentably distinguish the combination of Oohara, Jarman et al. and Ulichney et al. as cited by the Examiner.

Conclusion

It is submitted that this response addresses all of the issues raised in the Office Action. It is submitted that this application is in condition for allowance, which is respectfully requested.

Respectfully submitted,

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